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REMARKS

Initially, Applicants would like to express their appreciation to Examiner Nguyen for the courtesies extended to Applicants' attorney during a telephone interview on August 24, 2004. No agreement was reached on whether Applicants' original claim 1 overcame the cited references.

After the foregoing amendment, claims 1-7, 9-16, and 18-30 are pending in the application.

Applicants respectfully request additional consideration and review of the claims in view of the foregoing amendment and the following remarks.

Rejections Under 35 U.S.C. § 102(b)

The Examiner has rejected claims 1-4, 6-7, 9-13, 15, 16, 18-20, 22, 23, and 25-30 under 35 U.S.C. § 102(b) as being unpatentable over Forssen et al. (U.S. 5,615,409). Applicants have amended independent claims 1, 10, and 18.

A purpose of Applicants' claimed invention is to provide a method of increasing the possibility that a terminal will acceptably receive a signal. An important aspect of Applicants' claimed invention is to generate a composite electromagnetic field (EM) that directs energy in the direction of terminals as a function of the location and receive strengths of the terminals. This aspect of Applicants' claimed invention is set forth, for example, in independent claim 1 that calls for "generating a composite EM field to carry a signal to at least two terminals, ... , an amount of energy ... being a function of locations and acceptable receive strengths of at least two of the terminals, wherein the direction is an azimuth direction". See, for example, page 4, lines 8-18 in Applicants' specification where this aspect of the invention is discussed.

Turning to the cited prior art, the Forssen reference appears to be directed to a cellular communications system wherein mobile stations with known and unknown positions can be used in the same system, while the knowledge about the mobile's position can be used to reduce interference and increase system capacity. However, contrary to Applicants' claim 1, Forssen does not teach

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"wherein the direction is an azimuth direction". This distinction alone is sufficient to distinguish Applicants' claimed invention from Forssen.

In view of the foregoing, Applicants submit that Forssen does not describe each and every element of claim 1, either expressly or inherently, and therefore claim 1 is not anticipated by Forssen. Since claims 2-7 and 9 ultimately depend from claim 1, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for independent claim 1.

Independent claim 10 has a limitation similar to that in independent claim 1. For example, claim 10 recites "wherein the direction is an azimuth direction". Forssen does not teach this limitation for the above-mentioned reasons and, as such, claim 10 is also believed to be allowable for the reasons set forth above for claim 1. Since claims 11-16 ultimately depend from claim 10, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for independent claim 1.

Independent claim 18 has a limitation similar to that in independent claim 1. For example, claim 18 recites "wherein the direction is an azimuth direction". Forssen does not teach this limitation for the above-mentioned reasons and, as such, claim 18 is also believed to be allowable for the reasons set forth above for claim 1. Since claims 19-30 ultimately depend from claim 18, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for independent claim 1.

In view of the foregoing, Applicants respectfully request that the rejection under 35 U.S.C. §102(b) be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

The Examiner has rejected claims 5, 8, 14, 17, 21, 24 and 31 under 35 U.S.C. §103(a) as being unpatentable over Forssen et al. (U.S. 5,615,409) in view of various references. Applicants respectfully traverse this rejection.

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Rejections Under Forssen

Claims 5, 14, and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Forssen et al. (U.S. 5,615,409).

Forssen does not teach or suggest the limitations recited in Applicants' independent claims 1, 10, and 18 for the above-mentioned reasons. The Examiner's official notice does not cure the deficiencies noted above for Forssen. Since claim 5 depends from claim 1, claim 14 depends from claim 10, and claim 24 depends from claim 18, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for the respective independent claims. Therefore, Forssen still does not embody Applicants' claims 5, 14, and 24.

Furthermore, Applicants respectfully object to the Examiner taking official notice as per claims 5, 14, and 24. Applicants' method of generating a composite EM field to carry a signal to at least two terminals is not common knowledge nor is it practiced in the art. Applicants respectfully submit that a reference document should be cited that shows prior art as the basis for the rejection of Applicants' claim.

Rejections Under Forssen and Matsuda

Claims 8, 17, and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Forssen et al. (U.S. 5,615,409) in view of Matsuda (U.S. 5,200,755). Claims 8, 17, and 31 have been canceled and claims 1, 10, and 18 have been amended with the limitations from claims 8, 17, and 31, respectively. As such, this rejection is deemed to be moot with respect to claims 8, 17, and 31, but will be addressed in the context of amended claims 1, 10, and 18.

The Office Action states that Forssen does not teach the limitation, now recited in claims 1, 10, and 18, calling for "the direction is an azimuth direction". However, the Examiner proposes to combine Forssen with Matsuda as the basis for rejecting the claims with this limitation. Matsuda teaches the technique of permitting the width of the receive beams to be sharply narrowed irrespective of

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the transmit bandwidth or transmit pulse width to detect targets in a bistatic radar system.

In the Office Action, the Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Forssen with Matsuda's teachings in order to form the antenna in the direction of each of the terminals automatically and accurately. Applicants thus understand it to be the Examiner's position that it would have been obvious to modify the antenna array from Forssen to include an azimuth angle beam former as disclosed by Matsuda. Applicants respectfully submit that the teachings in Forssen and Matsuda provide no basis to conclude that a person of ordinary skill in the art would use Matsuda's azimuth angle beam former to facilitate Forssen's antenna array, thereby arriving at the subject matter of Applicants' claims 1, 10 and 18.

Applicants respectfully traverse the rejection.

First, the problems that the references address are so different that the teachings provide no motivation for the person of ordinary skill to combine these references. Forssen addresses the problem of determining a mobile station's position while reducing interference and increasing system capacity in a cellular communications system by using antenna arrays and by dividing the available traffic channels into, for example, a first class and a second class of channels. The first class of channels has a disturbance situation so that the base station can receive signals using wide antenna lobes and transmit signals to the mobile station using a wide antenna lobe. The second class of channels has a disturbance situation so that the base station must transmit signals using narrow antenna lobes in order to obtain acceptable quality, as stated in column 3, lines 29-39. The wide antenna lobe is used to determine the position of a mobile station. After determining the mobile stations' position, a base station can transmit signals to and receive signals from the mobile station in the second class of channels using the narrow lobes.

Rather than addressing problems that involve reducing interference and increasing system capacity in a cellular communications system as done by

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Forssen, it would appear that the problem being addressed by Matsuda is providing a way to detect targets that are outside the area formed by the intersection of the transmit and receive beams in a bistatic radar system. Matsuda teaches the technique of permitting the width of the receive beams to be sharply narrowed irrespective of the transmit bandwidth or transmit pulse width to detect targets.

How would the person of ordinary skill in the art be motivated to combine a solution that reduces interference and increases system capacity in a cellular communications system with another that teaches detecting targets with a bistatic radar system by narrowing the width of receive beams to achieve Applicants' claim 1? Applicants assert that he would not be motivated for the following reasons:

- Cellular systems, as in Forssen, are used to transmit conversations and data to and from mobile subscribers. In contrast, radar systems, as in Matsuda, transmit pulses, which are reflected and processed to detect the presence of targets and the location and velocity of targets.
- The proposed combination of Forssen with Matsuda does not solve Applicants' problem, which is to take advantage of the constructive interference of EM fields at the same frequency directed to various terminals.
- Forssen makes no mention of "the direction is an azimuth direction", as recited in Applicants' claim 1, nor is there a teaching in Forssen to suggest that there would be a reduction in interference and increased system capacity with such a teaching.
- Forssen teaches dividing the available traffic channels into a plurality of class of channels, which is not the same as detecting targets by narrowing the width of receive beams.
- The teachings of Forssen adequately address the problem of interference in determining a mobile station's position while detecting and increasing system capacity without such teachings.

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- Matsuda makes no mention of "generating a composite EM field to carry a signal to at least two terminals, ... , an amount of energy directed in a direction of each of the terminals being a function of locations and acceptable receive strengths of at least two of the terminals", nor is there a teaching in Matsuda to suggest that there would be an improvement in detecting targets with such a teaching.

The Examiner has stated that there is a motivation to combine Forssen with Matsuda in order to form the antenna in the direction of each of the terminals automatically and accurately. Applicants disagree. Neither Forssen nor Matsuda mention or suggest such a motivation.

Given that Forssen's technique doesn't suffer from the problem that Matsuda addresses, the person of ordinary skill would not be led to try to improve Forssen's technique with Matsuda's teachings. So, why would the person of ordinary skill in the art be motivated to modify Forssen with Matsuda's teachings? Applicants submit that such motivation could only arise with a hindsight reconstruction based on Applicants' own teachings.

In short, there is no basis on which the person skilled in the art would be led to use an azimuth angle beam former for any reason in Forssen, let alone in the particular way called for in Applicants' claims 8, 17, and 31, now recited in claims 1, 10, and 18. Only in hindsight based on Applicants' teachings would a person skilled in the art be motivated to change Forssen's method by combining it with Matsuda.

Accordingly, since a person skilled in the art would not look to combine the references as suggested, Applicants submit that the combination and resultant rejection are improper. Thus, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claims 8, 17, and 31, now recited in claims 1, 10, and 18.

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Rejections Under Forssen and Wong

Claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over Forssen et al. (U.S. 5,615,409) in view of Wong (U.S. 6,330,460).

With respect to claim 21, Forssen does not teach or suggest the limitation calling for "wherein the direction is an azimuth direction" recited in Applicants' independent claim 18 for the above-mentioned reasons. Wong does not cure the deficiencies noted above for Forssen. Since claim 21 ultimately depends from independent claim 18, which has previously been shown to be allowable, it is therefore also believed to be allowable for the same reasons set forth above for the respective independent claim 18. Therefore, the combination of Forssen and Wong still does not embody Applicants' claim 21.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claim 21.

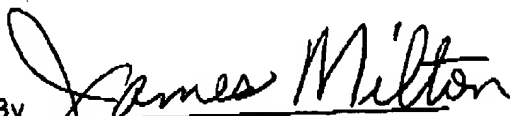
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Conclusion

In view of the remarks, Applicants submit that claims 1-7, 9-16, and 18-30 are in condition for allowance, and reconsideration is therefore respectfully requested. If there are any outstanding issues that the Examiner feels may be resolved by way of a telephone conference, the Examiner is invited to contact the undersigned to resolve the issues.

Respectfully submitted,

Richard Thomas Aiken

By 
James Milton, Attorney
Reg. No. 46935
(732) 949-7365

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